Fermilab

Fermilab Nuclear Materials Control and Accountability Program
Tabletop Self-Assessment Report

January 24, 2008

A tabletop assessment of the Nuclear Materials Control and Accountability (NMC&A) Program was conducted on January 17, 2008 by members of the ES&H Section Radiation Physics Group. J. Donald Cossairt, Associate Head for Radiation Protection, and the Radiation Physics Team members; Susan McGimpsey, Vernon Cupps, and Kamran Vaziri, conducted the tabletop self-assessment. The assessment team interviewed Kathy Graden, Fermilab's Nuclear Materials Representative (NMR), and reviewed documents, reports, logs, training, and forms associated with the program.

The following documents were reviewed:

- Nuclear Materials Control and Accountability Program Self-Assessment Report dated January 5, 2006
- Fermilab Nuclear Materials Control and Accountability Procedures (January 2007)
- Fermilab Nuclear Materials Control and Accountability Implementation Plan (January 2007)
- Fermilab Nuclear Materials Control and Accountability Program Task Analysis and Training Needs Assessment (Revised July 2005)
- Fermilab TAP Self-Evaluation Matrix for Nuclear Materials Control and Accountability Program (Revised July 2005)
- 2008 Forecast of Nuclear Materials Requirements Report
- Nuclear Materials Inventory List dated January 16, 2008
- NMC&A training records for K. Graden and S. McGimpsey
- Safeguards Management Software (SAMS) Data Entry Procedure (September 2006)
- Quarterly Material Balance Reports (DOE/NRC Form 742) for 2006 and 2007
- Nuclear Materials Log, On Site Transfer Log, Inventory Adjustment Log, and various forms.
- Material Balance Decay Spreadsheets

All recommendations from past audits of this program have been addressed and closed. No findings resulted from this self-assessment. Two observations and six recommendations have been identified as a result of this tabletop self-assessment.

Observations

1. There will be a major programmatic impact on Fermilab after 2010 when the DZero calorimeter is dismantled and decommissioned.

2. SAMS Data Entry Procedure does not have a procedure number associated with it.

Recommendations

1. Nuclear materials program documents with dated signatures should be converted into PDF files and placed on Eshserver1.

2. A document that defines the most commonly used nuclear materials terminology, acronyms, and nomenclature should be created and placed on Eshserver1.

3. The Nuclear Materials Representative should contact Fermilab's Procurement Department to ensure that deuterium is included on the list of forbidden materials.

4. The Nuclear Materials Representative should ensure that the current revision of the referenced hazard assessment in the Nuclear Materials Program Implementation Plan appropriately reflects depleted uranium and other nuclear materials hazards.

5. Dosimetry badge spiking, using neutron sources, is now being performed on a routine basis. These irradiations are performed at the Radiation Physics Calibration Facility, usually overnight, while the building is unoccupied. The Nuclear Materials Control and Accountability Program document should be revised to include this activity and address the security measures that are in place.

6. The Nuclear Materials Representative should verify that the quantity of tritium contained in a bottle at the Radiation Physics Calibration Facility is below reporting threshold levels.